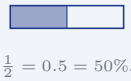
Fractions, Decimals, and Rational Numbers

Name: _____	Date: _____	Score: _____ / 18

Quick Review and Helpful Hints

A *rational number* can be written as a fraction $\frac{a}{b}$ of integers. Turn a fraction into a decimal by dividing the top by the bottom. A decimal that *terminates* or *repeats* is rational. To compare, write both numbers in the same form.

▷ **Example:** Write $\frac{3}{4}$ as a decimal. **Work:** Divide the top by the bottom: $3 \div 4 = 0.75$. ★ **Answer:** 0.75



$\frac{1}{2} = 0.5 = 50\%$.

Practice Problems

Convert or compare as directed.

1. $\frac{1}{2}$ as a decimal _____
2. $\frac{3}{4}$ as a decimal _____
3. $\frac{1}{4}$ as a decimal _____
4. $\frac{2}{5}$ as a decimal _____
5. $\frac{1}{5}$ as a decimal _____
6. 0.5 as a fraction _____
7. 0.25 as a fraction _____
8. $\frac{1}{10}$ as a decimal _____
9. $\frac{3}{5}$ as a decimal _____
10. 0.75 as a fraction _____
11. $\frac{7}{10}$ as a decimal _____
12. Is 0.5 rational? _____
13. $\frac{1}{8}$ as a decimal _____
14. 0.2 as a fraction _____

Word Problems

15. A pizza is cut and you eat $\frac{3}{4}$ of it. Write that as a decimal. _____
16. A gas tank is filled to 0.5 of its capacity after a commute. What fraction of the tank is full, in simplest form? _____
17. Which is larger, $\frac{1}{2}$ or 0.4? _____
18. Convert $\frac{2}{5}$ to a decimal. _____

Answer Keys

1. 0.5	**7.** $\frac{1}{4}$	**13.** 0.125
2. 0.75	**8.** 0.1	**14.** $\frac{1}{5}$
3. 0.25	**9.** 0.6	**15.** 0.75
4. 0.4	**10.** $\frac{3}{4}$	**16.** $\frac{1}{2}$
5. 0.2	**11.** 0.7	**17.** $\frac{1}{2}$
6. $\frac{1}{2}$	**12.** Yes	**18.** 0.4

Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $1 \div 2 = 0.5$. So the final answer is 0.5.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $3 \div 4 = 0.75$. So the final answer is 0.75.

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $1 \div 4 = 0.25$. So the final answer is 0.25.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $2 \div 5 = 0.4$. So the final answer is 0.4.

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $1 \div 5 = 0.2$. So the final answer is 0.2.

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $0.5 = \frac{5}{10} = \frac{1}{2}$. So the final answer is $\frac{1}{2}$.

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $0.25 = \frac{25}{100} = \frac{1}{4}$. So the final answer is $\frac{1}{4}$.

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $1 \div 10 = 0.1$. So the final answer is 0.1.

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $3 \div 5 = 0.6$. So the final answer is 0.6.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $0.75 = \frac{75}{100} = \frac{3}{4}$. So the final answer is $\frac{3}{4}$.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $7 \div 10 = 0.7$. So the final answer is 0.7.

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is It terminates, so yes, rational. So the final answer is Yes.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $1 \div 8 = 0.125$. So the final answer is 0.125.

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $0.2 = \frac{2}{10} = \frac{1}{5}$. So the final answer is $\frac{1}{5}$.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $3 \div 4 = 0.75$. So the final answer is 0.75.

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $0.5 = \frac{1}{2}$. So the final answer is $\frac{1}{2}$.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $\frac{1}{2} = 0.5 > 0.4$. So the final answer is $\frac{1}{2}$.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $2 \div 5 = 0.4$. So the final answer is 0.4.

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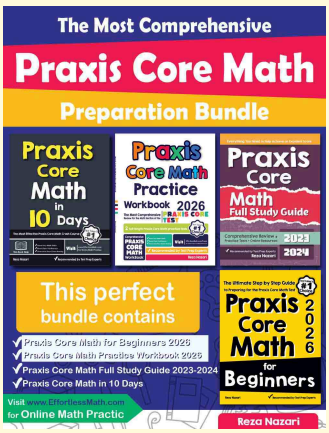

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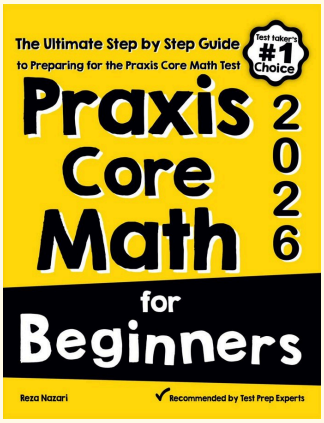

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